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CGC

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September 9, 2005

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Re: *Request for Certificate of Correction* for
United States Patent No. 6,893,693 B2
Issued May 17, 2005
Dean P. Swoboda et al.
entitled *High Gloss Disposable Pressware*
Our Reference 2251 (FJ-00-9)

Sir:

Attached hereto is a proposed *Certificate of Correction* in the above-noted patent, together with the attached sections of the patent wherein the errors are highlighted thereon.

Please issue a *Certificate of Correction* pursuant to 35 USC 254 to correct these mistakes, some of which occurred through the fault of the United States Patent and Trademark Office and some of which occurred through Applicant's mistakes. All corrections are of a typographical nature and are believed appropriate subject matter for a *Certificate of Correction*.

Please charge Deposit Account No. 50-0935 for any fees in connection with this matter.

Sincerely,

MW Ferrell

Michael W. Ferrell
Reg. No. 31,158

/crm
Attachments

(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : **6,893,693 B2**

DATED : **May 17, 2005**

INVENTOR(S) : **Dean P. Swoboda et al.**

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Column 5, line 9, change "CLEARSOLS.RTM." TO --CLEARSOL.RTM.--;
In Column 5, line 59, change "styrene/butadiene" to --styrene-butadiene--;
In Column 5, line 64, delete the first instance of "of";
In Column 6, line 27, change "poly(4-carboxyphenylnethacrylamide)" to --poly(4-carboxyphenylmethacrylamide)--; and
In Column 7, line 35, change "dies" to --die--.

MAILING ADDRESS OF SENDER (Please do not use customer number

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PATENT NO. **6,893,693 B2**

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SEP 19 2005

P15/REV03

CERTIFICATE OF MAILING BY FIRST CLASS MAIL (37 CFR 1.8) Applicant(s): **Dean Swoboda et al.**			Docket No. **2251 (FJ-00-9)**	
Application No. **10/004,874**	Filing Date **December 7, 2001**	Examiner **M.A. Patterson**	Customer No. **40256**	Group Art Unit **1772**

Invention: **HIHG GLOSS DISPOSABLE PRESSWARE**

I hereby certify that this **Letter re Cert.of Corr., Cert. of Corr., pages from patent & return postcard**
(Identify type of correspondence)

is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on **September 9, 2005**
(Date)

Carol R. Maddaloni
(Typed or Printed Name of Person Mailing Correspondence)

Carol R Maddaloni
(Signature of Person Mailing Correspondence)

Note: Each paper must have its own certificate of mailing.

P07A/REV04

.RTM. GUMS MV," "POLARIS.RTM. GUMS LV," "ASTRO.RTM. X 50," "ASTRO.RTM. X 100," ASTRO.RTM. X 101,"ASTRO.RTM. X 200," "ASTRO.RTM. GUM 21," "CALENDER SIZE 2283," "DOUGLAS.RTM. COOKER 3006," "DOUGLAS.RTM.-COOKER 3007," "DOUGLAS.RTM.-COOKER 3012-T," "DOUGLAS.RTM. COOKER 3018," "DOUGLAS.RTM.-COOKER 3019," "DOUGLAS.RTM.-COOKER 3040," "CLEARSOL.RTM. GUMS 7," "CLEARSOLS.RTM. GUMS 8," "CLEARSOL.RTM. GUMS 9," "CLEARSOL-RTM. GUMS 10," "DOUGLAS.RTM.-ENZYME 3622," "DOUGLAS.RTM. ENZYME E-3610," "DOUGLAS.RTM. ENZYME E-3615," "DOUGLAS.RTM. ENZYME 3022," "DOUGLAS.RTM.-ENZYME 3023," "DOUGLAS.RTM.-ENZYME 3024," "DOUGLAS.RTM. ENZYME E," "DOUGLAS.RTM.-ENZYME EC," "CROWN THIN BOILING X-10," "CROWN THIN BOILING X-18," "CROWN THIN BOILING XD," "CROWN THIN BOILING XF," "CROWN THIN BOILING XH," "CROWN THIN BOILING XJ," "CROWN THIN BOILING XL," "CROWN THIN BOILING XN," "CROWN THIN BOILING XP," "CROWN THIN BOILING XR," "DOUGLAS.RTM.-UNMODIFIED PEARL," and "DOUGLAS.RTM.-UNMODIFIED 1200." These sizing agents are all commercially available from Penford Products Co. "PENFORD.RTM.," "PENCOTE.RTM.," "PENSPRAE.RTM.," "PENGLOSS.RTM.," "APOLLO.RTM.," "ASTRO.RTM.," "ASTROCOTE.RTM.," "POLARIS.RTM.," "DOUGLAS.RTM.," and "CLEARSOL.RTM." are all registered trademarks of Penford Products Co. Other suitable starches, including "SILVER MEDAL PEARL.TM.," "PEARL B," "ENZO 32 D," "ENZO 36W," "ENZO 37D," "SUPERFILM 230D," "SUPERFILM 235D," "SUPERFILM 240DW," "SUPERFILM 245D," "SUPERFILM 270W," "SUPERFILM 280DW," "PERFORMER 1," "PERFORMER 2," "PERFORMER 3," "CALIBER 100," "CALIBER 110," "CALIBER 124," "CALIBER 130," "CALIBER 140," "CALIBER 150," "CALIBER 160," "CALIBER 170," "CHARGE +2," "CHARGE +4," "CHARGE +7," "CHARGE +9," "CHARGE +88," "CHARGE +99," "CHARGE +110," "FILMFLEX 40," "FILMFLEX 50," "FILMFLEX 60," and "FILMFLEX 70," are all commercially available from Cargill, Inc. Cofilm compositions which are film forming starch compositions available from National Starch are also preferred in some cases.

Following sizing, one or more clay coatings are typically applied to the paperboard substrate. A preferred clay coating may include 2 clay containing layers each having a coatweight of from about 4 to about 12 lbs per 3,000 square foot ream. Particular pigmented coatings are described in U.S. Pat. No. 5,776,619 to Shanton as noted above. It will be appreciated that the coatweight of such clay coatings is predominately due to the weight of the clay.

Following the base coat or coatings, a first finish coating consisting essentially of a styrene-butadiene resin composition is applied to the coated paperboard substrate. Any suitable styrene/butadiene containing resin composition may be used. A preferred resin composition includes a carboxylated styrene-butadiene resin. A particularly preferred resin is sold by Reichold under the Trademark Tykote 96038-00.

After the first finish coating is applied a second finish coating of consisting essentially of an acrylic resin composition is applied to the first finish coating. By acrylic coating it is meant that any suitable acrylic emulsion may be used. Such emulsions are generally polymers of acrylic acid or its derivatives and salts. Such compounds may include one or more of the following: polyacrylics and polyacrylic acids such as poly(benzyl acrylate), poly(butyl acrylate)(s), poly (2-cyanobutyl acrylate), poly(2-ethoxyethyl acrylate), poly (ethyl acrylate), poly(2-ethylhexyl acrylate), poly (fluoromethyl acrylate), poly(5,5,6,6,7,7,7-heptafluoro-3-oxaheptyl acrylate), poly(heptafluoro-2-propyl acrylate), poly(heptyl acrylate), poly(hexyl acrylate), poly(isobornyl acrylate), poly(isopropyl acrylate), poly(3-methoxybutyl acrylate), poly(methyl acrylate), poly(nonyl acrylate), poly (octyl acrylate), poly(propyl acrylate), poly(p-tolyl acrylate), poly(acrylic acid) and derivatives and salts thereof; polyacrylamides such as poly(acrylamide), poly(N-butylacrylamide), poly(N,N-dibutylacrylamide), poly(N-dodecylacrylamide), and poly(morpholylacrylamide); polymethacrylic acids and poly(methacrylic acid esters) such as poly(benzyl methacrylate), poly(octyl methacrylate), poly (butyl methacrylate), poly(2-chloroethyl methacrylate), poly (2-cyanoethyl methacrylate), poly(dodecyl methacrylate), poly(2-ethylhexyl methacrylate), poly(ethyl methacrylate), poly(1,1,1-trifluoro-2-propyl methacrylate), poly(hexyl methacrylate), poly(2-hydroxyethyl methacrylate); poly(2-hydroxypropyl methacrylate), poly(isopropyl methacrylate), poly(methacrylic acid), poly(methyl methacrylate) in various forms such as, atactic, isotactic, syndiotactic, and heterotactic; and poly(propyl methacrylate); polymethacrylamides such as poly(4-carboxyphenylmethacrylamide); other alpha- and beta-substituted poly(acrylics) and poly (methacrylics) such as poly(butyl chloracrylate), poly(ethyl ethoxycarbonylmethacrylate), poly(methyl fluoroacrylate), and poly(methyl phenylacrylate). Both finish coating layers should be FDA approved material.

The first finish coating layer and second top finish coating layer are typically water borne and press-applied, suitably by way of a printing-type apparatus. Suitable coating methods include gravure techniques, flexographic techniques, hydrophilic coating techniques, coil coating, trailing blade coating methods and so forth.

A typical coated paperboard structure **5** of the present invention includes paperboard **6**, provided with a starch coating **8** on its upper and lower surfaces. The starch may or may not form a continuous film on the surface of paperboard **6** as shown and largely penetrates into the paperboard as shown by dotted lines **10** in the diagram, well toward the center of the fibrous paperboard structure.

On the food service side of the paperboard, there is provided atop starch **8** a first clay coating, typically a kaolin pigment coating **12** which includes a latex binder. A second clay coating **14** is advantageously applied to coating **12**. Coating **14** is likewise predominately clay and includes a latex binder. The first finish coating **16** of the present invention is applied directly to coating **14** and the second finish or top coating **18** is applied directly to the first finish coating. First finish coating **16** consists essentially of a styrene-butadiene resin composition, whereas second or top finish **18** consists essentially of an acrylic resin composition as noted above.

The product of the invention is, in general, formed with a heated matched pressware die set, from paperboard plate stock of conventional thicknesses in the range of from about 0.010 to about 0.040 inches. The springs upon which the lower die half is mounted are typically constructed such that the full stroke of the upper die results in a force applied between the dies of from about 6000 to 8000 pounds. The paperboard which is formed into the blanks is conventionally produced by a wet laid paper making process and is typically available in the form of a continuous web on a roll

The paperboard stock is preferred to have a basis weight in the range of from about 100 pounds to about 400 pounds per 3,000 square foot ream and a thickness or caliper in the range of from about 0.010 to about 0.040 inches. Lower basis weight paperboard is preferred for ease of forming and to save on feedstock costs. Paperboard stock utilized for forming paper plates is typically formed from bleached pulp furnish, and may be double clay coated on one side. Such paperboard stock commonly has a moisture (water content) varying from about 4.0 to about 8.0 percent by weight.

The effect of the compressive forces at the rim is greatest when the proper moisture conditions are maintained within the paperboard: at least 8% and less than 12% water by weight, and preferably 9.5 to 10.5%. Paperboard having moisture in this range has sufficient moisture to deform under pressure, but not such excessive moisture that water vapor interferes with the forming operation or that the paperboard is too weak to withstand the high compressive forces applied. To achieve the desired moisture levels within the paperboard stock as it comes off the roll, the paperboard is treated by spraying or rolling on a moistening solution, primarily water, although other components such as lubricants may be added. The moisture content may be monitored with a hand held capacitive type moisture meter to verify that the desired moisture conditions are being maintained. It is preferred that the plate stock not be formed for at least six hours after moistening to allow the moisture within the paperboard to reach equilibrium.

The stock is moistened on the uncoated side after all of the printing and coating steps have been completed. In a typical forming operation, the web of paperboard stock is fed continuously from a roll through a scoring and cutting die to form the circular blanks which are scored and cut before being fed into position between the upper and lower die halves. The dies halves are heated as described above, to aid in the forming process. It has been found that best results are obtained if the upper die half and lower die half—particularly the surfaces thereof—are maintained at a temperature in the range of from about 250° F. to about 400° F., and most preferably at about 325° F.±25° F. These die temperatures have been found to facilitate the plastic deformation of paperboard in the rim areas if the paperboard has the preferred moisture levels. At these preferred die temperatures, the amount of heat applied to the blank is apparently sufficient to liberate the moisture within the blank under the rim and thereby facilitate the deformation of the fibers without overheating the blank and causing blisters from liberation of steam or scorching the blank material. It is apparent that the amount of heat applied to the paperboard will vary with the amount of time that the dies dwell in a position pressing the paperboard together. The preferred die temperatures are based on the usual dwell times encountered for normal production speeds of 30 to 60 pressings a minute, and commensurately higher or lower temperatures in the dies would generally be required for higher or lower production speeds, respectively.

As will be appreciated by one of skill in the art, the knock-outs are important for holding the container blank on center during formation and for separating the finished product from the die halves, particularly during high speed operation. There is shown in FIGS. 1 through 4 a metal die press **20** including an upper die press assembly **22**, commonly referred to as a punch die assembly and a lower die assembly **24**. That is, assembly **24** includes a mounting plate **26**, a segmented die **28** with a knock-out **30**, a sidewall forming section **32**, a rim forming portion **34** and a draw ring **36**. It will be appreciated that metal die press **20** is ordinarily operated in an inclined state in accordance with the following United States Patents, the disclosures of which have been incorporated by reference into this application:

U.S. Pat. No. 5,326,020;
U.S. Pat. No. 5,249,946;
U.S. Pat. No. 4,832,676;
U.S. Pat. No. 4,721,500;
U.S. Pat. No. 4,721,499;
U.S. Pat. No. 4,609,140;
U.S. Pat. No. 4,606,496 The die set includes a plurality of freely rotating stop pins **38**, **40**, **42** and **44**. Each pin **38**–**44** is constructed of steel or other suitable material and includes an elongated shaft as well as a central bore. Bolts, preferably socket head shoulder bolts, are used to secure pins **38**–**44** to draw ring **36** of segmented die **28** as shown in FIG. **2**. Referring to FIG. **3** there is shown a blank **46** provided with a plurality of scores **48** which are subsequently formed into pleats in the final product. That is to say, paperboard is gathered and pressed into a pleat about scores **48**. The pleats preferably are of the same thickness as adjacent regions of the plate and are substantially radially coextensive with the scores from which they are formed. Products in accordance with the present invention thus preferably include a plurality of circumferentially spaced densified regions of integrated fibrous structures extending radially over the sidewall and rim; most preferably including at least about three layers of paperboard reformed into substantially integrated fibrous structures generally inseparable into their constituent layers and having a thickness generally equal to circumferentially adjacent areas of the rim.

As shown in FIG. **3** it would be appreciated that the rotating pin blank stops **38**–**44** are located on the forward portion of the lower die assembly **24**, that is, the downstream production portion of the die, such that a gravity fed blank, such as blank **46**, will contact the blank stops as shown. It could be seen that pins **38**–**44** are in opposing relationship at the periphery at the lower die at a distance which is less than the maximum transverse dimension of the blank, in this case the diameter of blank **46** since it is a circular blank and that pins **40** and **42** are also located at a distance which is also less than the diameter of the blank inasmuch as the plate will move in the direction indicated by arrow **50** in the production process, it is important that the rotating pin blank stops do not interfere with the motion of the finished product. After the blank is positioned as shown in FIG. **3**, the top assembly **22** is lowered and the forming process is carried out in a conventional manner and the product **52** is formed as shown in FIG. **4**. In FIG. **4** there is shown schematically a plurality of pleats **56** which correspond to scores **48**. That is to say, the excess circumferential material from the planar paperboard blank gathers about scores **48** when a three-dimensional geometry is imparted to the product to form pleats **56** which thus have an amount of material therein corresponding to a plurality of paperboard layers. Preferably, this excess material is pressed into substantially integrated fibrous structures, that is, where pressed layers exhibit reduced void fractions as compared to the uncompressed board and are not readily separated into their constituent layers in normal use under the loads normally encountered in such use. Without wishing to be bound by any theory, it is believed the finish coatings of the present invention enhances the formation of strong pleats as reflected particularly by the enhanced rigidity of the inventive articles seen below.